AMENDMENTS TO THE CLAIMS:

1. (Presently Amended) A process for making a thin film ZnO/Cu(InGa)$Se_2$ solar cell without depositing a buffer layer and by Zn doping from a vapor phase, comprising:

a) depositing Cu(InGa)$Se_2$ layer on a metal back contact deposited on a glass substrate;

b) heating the Cu(InGa)$Se_2$ layer on said metal back contact on said glass substrate to a temperature range between about 100°C to about 250°C;

c) subjecting the heated layer of Cu(InGa)$Se_2$ to an evaporant species from a Zn compound to dope the Cu(InGa) $Se_2$ with Zn and etching in acetic acid in an amount of about 50% by volume in water to remove ZnO; and

d) sputter depositing ZnO on the Zn compound evaporant species treated layer of Cu(InGa)$Se_2$.

2. The process of claim 1 wherein said metal back contact is Mo.

3. (Presently Amended) The process of claim 2 wherein the zinc compound is selected from the group consisting of zinc acetate ~~dehydrate~~ dihydrate, zinc chloride, zinc iodide, and zinc bromide.

4. The process of claim 3 wherein said zinc compound is zinc acetate dihydrate.

5. The process of claim 3 wherein in step c) the heated layer of Cu(InGa)$Se_2$ is subjected to said evaporant species from said Zn compound under a vacuum.

6. (Presently Amended) The process of claim 4 wherein the substrate temperature is about 100°C during said heating.

7. (Presently Amended) The process of claim 4 wherein the substrate temperature is about 150°C during said heating.

8. (Presently Amended) The process of claim 4 wherein the substrate temperature is about 200°C during said heating.

9. (Presently Amended) The process of claim 4 wherein the substrate temperature is between 200°C and 250°C during said heating.

10. (Cancelled)

11. (Cancelled)

12. (Cancelled)

13. (Cancelled)

14. (Presently Amended) The process of claim ~~10~~ 6 wherein, prior to sputter depositing ZnO in step d) an annealing step is performed at a temperature range from about 150°C to about 200°C.

15. (Presently Amended) The process of claim ~~11~~ 7 wherein, prior to sputter depositing ZnO in step d) an annealing step is performed at a temperature range from about 150°C to about 200°C.

16. (Presently Amended) The process of claim ~~12~~ 8 wherein, prior to sputter depositing ZnO in step d) an annealing step is performed at a temperature range from about 150°C to about 200°C.

17. (Presently Amended) The process of claim ~~13~~ 9 wherein, prior to sputter depositing ZnO in step d) an annealing step is performed at a temperature range from about 150°C to about 200°C.

18. A thin film photovoltaic device comprising a first layer of p-type $Cu(InGa)Se_2$ semiconductor having an n-type second layer of an evaporant species from a Zn compound that has been etched with acetic acid and sputter deposited with ZnO.

19. The thin film photovoltaic device of claim 18 wherein the Zn compound is zinc acetate dihydrate.